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Purpose or Objective: Many patients with advanced cancer develop bone metastases, with pain as a common, devastating consequence. Adequate treatment is important to maintain quality of life. Radiotherapy is the standard treatment for patients with painful bone metastases. Meta-analyses of radiotherapy trials have consistently shown a pain response rate of approximately 60% implying that many patients are treated insufficiently. It would be worthwhile to identify patients who will not respond to radiotherapy as these patients might be candidates for other treatments. Furthermore, better understanding and identification of the patients who do not respond to radiation, might help in the development of innovative treatments as alternative or addition to standard (radiation) treatment options. We studied the relationship between patient and treatment characteristics and pain response in patients with metastatic bone disease, with the aim to construct a prediction model to guide individualized treatment decision-making.

Material and Methods: We analyzed all prospectively collected data on pain response from a palliative radiotherapy clinic in an academic hospital. Patients were considered responders if they reported a decrease in pain score of at least 2 points with stable analgesic use within 3 months after treatment. A multivariable logistic regression model was developed with age, gender, primary tumor, Karnofsky performance status (KPS), painful localization, presence of visceral metastases, previous systemic treatment, analgesic use at baseline, and baseline pain score. For variable selection, we started with the full model and applied backward stepwise selection with a selection criterion of $p < 0.20$. Performance of the model was quantified using the c-statistic and corrected for optimism. A worst case scenario (assuming no response in patients who were lost to follow up) was added as sensitivity analysis.

Results: A total of 1018 patients treated between January 1999 and November 2007 were included. Outcome was recorded in 588 (58%) patients, of which 394 (67%) reported a response. Primary tumor, KPS, baseline pain score, and analgesic use were predictive for response with a corrected c-statistic of 0.59 (Table). Assuming non-response in the 430 patients without follow up (worst case scenario), there was still an association between response and primary tumor, KPS, and baseline pain score.

Conclusion: Primary tumor, performance status, baseline pain score, and analgesic use are associated with pain response in patients with bone metastases. However, combining these factors in a prediction model showed poor discrimination limiting its use in clinical practice. Response rates after radiotherapy are moderate, and its prediction is difficult, which shows the need for development of innovative treatments for patients with bone metastases.

EP-1433

Comparison of single fraction versus long course RT treating bone metastasis with cobalt machines

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Purpose or Objective: To present the observed comparative advantages of the single fraction versus long course radiation therapy in the palliative treatment of bone metastasis, in the conditions of technological resources limited to one national center equipped with only cobalt machines.Purpose: To present the observed comparative advantages of the single fraction versus long course radiation therapy in the palliative treatment of bone metastasis, in the conditions of technological resources limited to one national center equipped with only cobalt machines.

Material and Methods: The Radiation Therapy of Mother Theresa University Hospital Center, the unique public center providing RT in the country, performed a study comparing single dose of 8 Gy/1fr. versus 20 Gy/5fr. and 30gy/10fr. enrolling 110 patients during a time period of five years (2007 – 2012). Factors for the treatment choice between available options were age, pain level, effect of narcotics and need for assistance as well as time and cost effectiveness. Pain relief was assessed based on the patient perception expressed during the follow up visits, 2 weeks, 4 weeks and 12 weeks after the treatment and subsequently every 12 weeks for a period of 48 weeks. Qualitative data from the follow up visits were classified in a scale of 10 points.

Results: The complete pain relief was attained for 90 patients or 81.8% out of 110 patients, subject to this study. From this number, 33 patients were treated with single shot, 31 with 20 Gy/5 fraction and 46 with 30Gy/10fr. The percentage of patients benefiting partial pain relief varied from 17.4 to 19.5 which indicate also similar results from the available treatment regimes. Therefore, it wasn't evidenced significant difference between the treatment options as regard to the patients achieving complete or partial pain relief. Further, the toxicity level scored 2-3 grade for all the treatment regimes used. In addition, the patients demonstrated similar median survival from 8 to 10 months for the three options.

Conclusion: The findings of the study indicate that single fraction 800cGy/1fr is a treatment option with similar effects with the multiple fractions 20Gy/5fr and 30Gy/10fr. It can be used as more time and cost effective standard treatment especially for patients presenting higher level of pain and more in need for assistance including elder and those more distant from the treatment centers.

EP-1434

Phase II study of short-course accelerated palliative radiotherapy for complicated bone metastases

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Purpose or Objective: To assess the efficacy of a SHort-course Accelerated RadiatiON therapy (SHARON) regimen in the palliative treatment of complicated bone metastases.